REMARKS

Claims 1-20 remain in this application. Claim 11 is amended above to correct a spelling error.

Claim Rejections under 35 U.S.C. §102

The Office Action rejected claims 1-20 under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 20050259597 to Benedetto et al. (the Benedetto reference). A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. The identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. 2131. Applicants respectfully traverse this rejection of claims 1-20 because the Office Action has failed to prove that the Benedetto reference discloses each element of the claims.

Independent Claim 1 and dependent claims 2 through 7

The Office Action has failed to prove that the Benedetto reference discloses the elements of claim 1, *inter alia*, of, "in the provider edge bridges coupled to a customer LAN segment: receiving topology change notifications (TCNs) from the customer network; in response to receiving a TCN, monitoring end host addresses in data units received from the customer network for a predetermined time period; flushing an address memory file associating end host addresses with ports of the provider edge bridge in response to detecting an end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network."

The Office Action cites Figure 2 and paragraphs 19, 92 and 113 of the Benedetto reference for disclosing these elements of the claims. However, the Office Action has misconstrued the disclosure of the Benedetto reference. The Benedetto reference states in paragraph 17 that:

> If a bridge stops receiving BPDU messages on a given port (indicating a possible link or device failure), it will continue to increment the respective message age value until it reaches the maximum age threshold. The bridge will then discard the

> stored BPDU information and proceed to re-calculate the root, root path cost and root port by transmitting BPDU messages utilizing the next best information it has. The maximum age value used within the bridged network is typically set by the root, which enters the appropriate value in the maximum age field 126 of its transmitted BPDU messages 100. Neighboring bridges similarly load this value in their BPDU messages, thereby propagating the selected value throughout the network. The default maximum age value under the IEEE standard is twenty seconds.

The Benedetto reference clearly indicates in this paragraph 17 that a bridge will only discard stored BPDU information if a bridge stops receiving BPDU messages on a given port for a maximum age value threshold. In paragraph 19, the Benedetto reference reiterates this disclosure and states that:

> To prevent bridges from distributing messages based upon incorrect address information, bridges quickly age-out and discard the "old" information in their filtering databases. More specifically, upon detection of a change in the active topology, a bridge begins transmitting Topology Change Notification Protocol Data Unit (TCN-PDU) messages on its root port. The format of the TCN-PDU message is well known (see IEEE 802.1D standard) and, thus, will not be described herein. A bridge receiving a TCN-PDU message sends a TCN-PDU of its own from its root port and sets the TCA flag 112 in BPDUs that it sends on the port from which the TCN-PDU was received, thereby acknowledging receipt of the TCN-PDU. By having each bridge send TCN-PDUs from its root port, the TCN-PDU is effectively propagated hop-by-hop from the original bridge up to the root. The root confirms receipt of the TCN-PDU by setting the TC flag 114 in the BPDUs that it subsequently transmits for a period of time. Other bridges, receiving these BPDUs, note that the TC flag 114 has been set, thereby alerting them to the change in the active topology. In response, bridges significantly reduce the aging time associated with their filtering databases which, as described above, contain destination information corresponding to the entities within the

> network. Specifically, bridges replace the default aging time of five minutes with the forwarding delay time, which by default is fifteen seconds. Information contained in the filtering databases is thus quickly discarded.

Thus, in response to a TCN-PDU, the Benedetto reference merely discloses that bridges significantly reduce the aging time associated with their filtering databases. As such, the Benedetto reference fails to describe that, "in the provider edge bridges coupled to a customer LAN segment: receiving topology change notifications (TCNs) from the customer network; in response to receiving a TCN, monitoring end host addresses in data units received from the customer network for a predetermined time period; flushing an address memory file associating end host addresses with ports of the provider edge bridge in response to detecting an end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network," as required by claim 1.

In conclusion, the Benedetto reference fails to disclose each element of the independent claim 1 and thus fails to anticipate claim 1 under 35 U.S.C. 102(e). Claims 2 through 10 add further patentable matter to Claim 1 and thus are further differentiated and patentable under 35 U.S.C. §102 over the Benedetto reference.

Independent Claim 8 and dependent claims 9 and 10

The Office Action has failed to prove that the Benedetto reference discloses the elements of claim 8, *inter alia*, of, "in each edge bridge of a LAN segment having a multi-homed connection to the provider network: flagging topology change notifications (TCNs) which relate to topology changes affecting paths of data units through the provider network; and in each of the provider edge bridges coupled to a customer LAN segment: receiving topology change notifications (TCNs) from the customer network; in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge bridge; and in response to receiving an unflagged TCN, passing the TCN without flushing an address memory file."

The Office Action cites Figure 2 and paragraphs 19 and 108 of the Benedetto reference for disclosing these elements of the claims. However, the Office Action has misconstrued the disclosure of the Benedetto reference. The Benedetto reference states in paragraph 17 that:

> If a bridge stops receiving BPDU messages on a given port (indicating a possible link or device failure), it will continue to increment the respective message age value until it reaches the maximum age threshold. The bridge will then discard the stored BPDU information and proceed to re-calculate the root, root path cost and root port by transmitting BPDU messages utilizing the next best information it has. The maximum age value used within the bridged network is typically set by the root, which enters the appropriate value in the maximum age field 126 of its transmitted BPDU messages 100. Neighboring bridges similarly load this value in their BPDU messages, thereby propagating the selected value throughout the network. The default maximum age value under the IEEE standard is twenty seconds.

The Benedetto reference clearly indicates that a bridge will only discard stored BPDU information if a bridge stops receiving BPDU messages on a given port for a maximum age value threshold. In paragraph 108, the Benedetto reference teaches away from the present invention. It states that:

> If the root of a spanning tree instance in the MI-STP region 702 is notified or otherwise detects a topology change, it preferably generates and sends a conventional, untagged TCN. This TCN is similarly tunneled through the MI-STP region 702 and reaches the MST regions 710, 712. In the MST regions 710, 712, the TCN is propagated hop-by-hop to the MST root, which responds by setting the TC flag field 116 of subsequent BPDUs 100 sourced by the MST root.

The Benedetto teaches away from claim 8 by describing that a root that detects a topology change in the MI-STP region merely sends an untagged TCN and in the MST regions 710, 712, the TCN is propagated hop-by-hop to the MST root, which responds by setting the TC flag field 116 of subsequent BPDUs 100 sourced by the MST root. This disclosure teaches away from, "in

each edge bridge of a LAN segment having a multi-homed connection to the provider network: flagging topology change notifications (TCNs) which relate to topology changes affecting paths of data units through the provider network; and in each of the provider edge bridges coupled to a customer LAN segment: receiving topology change notifications (TCNs) from the customer network; in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge bridge; and in response to receiving an unflagged TCN, passing the TCN without flushing an address memory file," as required by claim 8.

In conclusion, the Benedetto reference fails to disclose each element of the independent claim 8 and thus fails to anticipate claim 8 under 35 U.S.C. 102(e). Claims 9 through 10 add further patentable matter to Claim 8 and thus are further differentiated and patentable under 35 U.S.C. §102 over the Benedetto reference.

Independent Claim 11 and dependent claims 12 through 17

The Office Action has failed to prove that the Benedetto reference discloses the elements of claim 11, *inter alia*, of, "processing circuitry for: receiving topology change notifications (TCNs) from the one or more customer bridges; in response to receiving a TCN, monitoring end host addresses in data units received from the one or more customer bridges for a predetermined time period; flushing an address memory file associating end host addresses with ports of the provider edge bridge if a data unit received in the predetermined time period has a end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network." The Office Action cites Figure 2 and paragraphs 19, 92 and 113 of the Benedetto reference for disclosing these elements of the claims. However, the Office Action has misconstrued the disclosure of the Benedetto reference. The Benedetto reference states in paragraph 17 that:

> If a bridge stops receiving BPDU messages on a given port (indicating a possible link or device failure), it will continue to increment the respective message age value until it reaches the maximum age threshold. The bridge will then discard the stored BPDU information and proceed to re-calculate the root, root path cost and

> root port by transmitting BPDU messages utilizing the next best information it has. The maximum age value used within the bridged network is typically set by the root, which enters the appropriate value in the maximum age field 126 of its transmitted BPDU messages 100. Neighboring bridges similarly load this value in their BPDU messages, thereby propagating the selected value throughout the network. The default maximum age value under the IEEE standard is twenty seconds.

Thus, the Benedetto reference clearly indicates that a bridge will only discard a stored BPDU information if a bridge stops receiving BPDU messages on a given port for a maximum age value threshold. In paragraph 19, the Benedetto reference reiterates this disclosure and states that:

> To prevent bridges from distributing messages based upon incorrect address information, bridges quickly age-out and discard the "old" information in their filtering databases. More specifically, upon detection of a change in the active topology, a bridge begins transmitting Topology Change Notification Protocol Data Unit (TCN-PDU) messages on its root port. The format of the TCN-PDU message is well known (see IEEE 802.1D standard) and, thus, will not be described herein. A bridge receiving a TCN-PDU message sends a TCN-PDU of its own from its root port and sets the TCA flag 112 in BPDUs that it sends on the port from which the TCN-PDU was received, thereby acknowledging receipt of the TCN-PDU. By having each bridge send TCN-PDUs from its root port, the TCN-PDU is effectively propagated hop-by-hop from the original bridge up to the root. The root confirms receipt of the TCN-PDU by setting the TC flag 114 in the BPDUs that it subsequently transmits for a period of time. Other bridges, receiving these BPDUs, note that the TC flag 114 has been set, thereby alerting them to the change in the active topology. In response, bridges significantly reduce the aging time associated with their filtering databases which, as described above, contain destination information corresponding to the entities within the

> network. Specifically, bridges replace the default aging time of five minutes with the forwarding delay time, which by default is fifteen seconds. Information contained in the filtering databases is thus quickly discarded.

Thus, in response to TCN-PDU, the Benedetto reference merely discloses that bridges significantly reduce the aging time associated with their filtering databases. As such, the Benedetto reference fails to describe that, "processing circuitry for: receiving topology change notifications (TCNs) from the one or more customer bridges; in response to receiving a TCN, monitoring end host addresses in data units received from the one or more customer bridges for a predetermined time period; flushing an address memory file associating end host addresses with ports of the provider edge bridge if a data unit received in the predetermined time period has a end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network," as required by claim 11.

In conclusion, the Benedetto reference fails to disclose each element of the independent claim 11 and thus fails to anticipate claim 11 under 35 U.S.C. 102(e). Claims 12 through 17 add further patentable matter to Claim 11 and thus are further differentiated and patentable under 35 U.S.C. §102 over the Benedetto reference.

Independent Claim 18 and dependent claims 19 and 20

The Office Action has failed to prove that the Benedetto reference discloses the elements of claim 18, *inter alia*, of, "in each edge bridge of a LAN segment having a multi-homed connection to the provider network, a customer edge bridge comprising a processor for flagging topology change notifications (TCNs) which relate to topology changes which affecting paths of data units through the provider network; and in each of the provider edge bridges coupled to a customer LAN segment a processor for: receiving topology change notifications (TCNs) from the customer network; in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge bridge; and in response to receiving an unflagged TCN, passing the TCN without generating an address memory file."

The Office Action cites Figure 2 and paragraphs 19 and 108 of the Benedetto reference for disclosing these elements of the claims. However, the Office Action has misconstrued the disclosure of the Benedetto reference. The Benedetto reference states in paragraph 17 that:

> If a bridge stops receiving BPDU messages on a given port (indicating a possible link or device failure), it will continue to increment the respective message age value until it reaches the maximum age threshold. The bridge will then discard the stored BPDU information and proceed to re-calculate the root, root path cost and root port by transmitting BPDU messages utilizing the next best information it has. The maximum age value used within the bridged network is typically set by the root, which enters the appropriate value in the maximum age field 126 of its transmitted BPDU messages 100. Neighboring bridges similarly load this value in their BPDU messages, thereby propagating the selected value throughout the network. The default maximum age value under the IEEE standard is twenty seconds.

The Benedetto reference clearly indicates that a bridge will only discard stored BPDU information if a bridge stops receiving BPDU messages on a given port for a maximum age value threshold. In paragraph 108, the Benedetto reference teaches away from the present invention. It states that:

> If the root of a spanning tree instance in the MI-STP region 702 is notified or otherwise detects a topology change, it preferably generates and sends a conventional, untagged TCN. This TCN is similarly tunneled through the MI-STP region 702 and reaches the MST regions 710, 712. In the MST regions 710, 712, the TCN is propagated hop-by-hop to the MST root, which responds by setting the TC flag field 116 of subsequent BPDUs 100 sourced by the MST root.

The Benedetto teaches away from claim 18 by describing that a root that detects a topology change in the MI-STP region merely sends an untagged TCN and in the MST regions 710, 712, the TCN is propagated hop-by-hop to the MST root, which responds by setting the TC flag field 116 of subsequent BPDUs 100 sourced by the MST root. This disclosure teaches away from, "in

each edge bridge of a LAN segment having a multi-homed connection to the provider network: flagging topology change notifications (TCNs) which relate to topology changes affecting paths of data units through the provider network; and in each of the provider edge bridges coupled to a customer LAN segment: receiving topology change notifications (TCNs) from the customer network; in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge bridge; and in response to receiving an unflagged TCN, passing the TCN without flushing an address memory file," as required by claim 18.

In conclusion, the Benedetto reference fails to disclose each element of the independent claim 18 and thus fails to anticipate claim 18 under 35 U.S.C. 102(e). Claims 19 through 20 add further patentable matter to Claim 18 and thus are further differentiated and patentable under 35 U.S.C. §102 over the Benedetto reference.

CONCLUSION

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 240-5324.

Respectfully submitted,
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